(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number
WO 2005/014153 A1

(51) International Patent Classification[7]: B01F 7/28, 7/00, 15/06, B01J 19/18, 10/02

(21) International Application Number:
PCT/CH2004/000494

(22) International Filing Date: 6 August 2004 (06.08.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03018073.1 8 August 2003 (08.08.2003) EP
03019330.4 27 August 2003 (27.08.2003) EP

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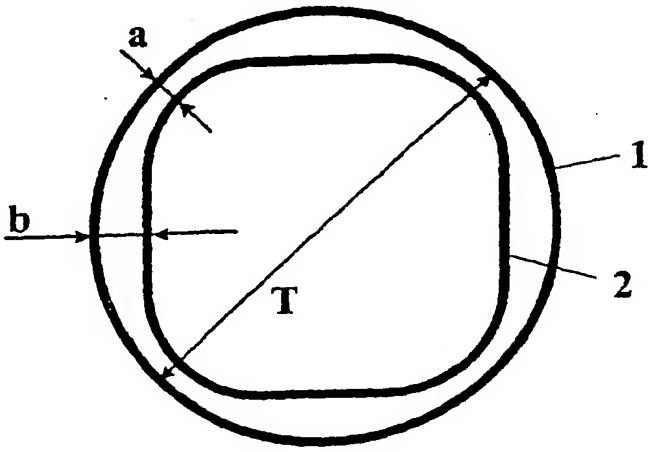
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ROTATING STIRRING DEVICE WITH SUBSTANTIALLY NARROW DISTRIBUTION OF ENERGY DISSIPATION RATE



(57) Abstract: A rotating stirring device for generating substantially narrow distribution of energy dissipation rate and avoiding presence of Taylor vortices is disclosed. The device comprises an outer member (1) such as a cylinder with cross-section of circular shape and an inner member (2) with cross-section of equilateral or inequilateral polygon shape with curved cusps. The inner member is preferably concentrically placed within the outer cylinder and rotates. Such device is particularly advantageous as a reactor or mixer for processes where chemical and physical properties are sensitive to the variations in the shear rate and for processes that involve fragile components. The device can be also used to replace Taylor Couette device for the purposes of improving mass transfer and of avoiding separation of components in the gap in the case of presence of differences in density among components.

WO 2005/014153 A1